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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/925,102	08/08/2001	Jack H. Yuan	M-11822 US	3186

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EXAMINER

DANG, PHUC T

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 04/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/925,102

Applicant(s)

YUAN ET AL.

Examiner

PHUC T DANG

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on election filed on March 4, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 23-31 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-22 is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9. 6) ☐ Other: _____

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DETAILED ACTION

1. This application is related to United States Patent No. 6,103,573 and 6,151,248, and application serial No. 09/667,344 filed on September 22, 2000, which patents and application are expressly incorporated herein in their entirety by this reference.

Response to Pre-Amendment

2. Pre-Amendment filed on July 22, 2002 has been entered and made of record as Paper No. 7.

In Pre-Amendment, applicants added claims 24-31 and claims 1-31 are pending in this application.

Election/Restriction

3. Applicant's election without traverse of Group I (claims 1-22) in Paper No. 11 drawn to a method of forming a non-volatile memory integrated circuit. Applicants have the right to file a divisional application covering the subject matter of the non-elected claims.

Oath/Declaration

4. The oath/declaration filed on August 8, 2001 is acceptable.

Information Disclosure Statement

5. The office acknowledges receipt of the following items from the applicant:

Information Disclosure Statement (IDS) filed on August 26, 2002.

Drawings

6. The formal drawings filed on April 18, 2002 as Paper No. 5 has been acknowledged.

Specification

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7. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (U.S. Patent No. 6,406,961 B1) in view of Harari et al. (U.S. Patent No. 6,151,248).

Chen discloses a method for forming a non-volatile memory integrated circuit, comprising:

growing a layer of dielectric (21, Fig. 4A) across a surface of the substrate (20, Fig. 4A);

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depositing a layer of conductive material layer (22, Fig. 4B) across the dielectric layer (21, Fig. 4B);

removing a portion of the conductive material layer (22, Fig. 4C) to form a plurality of slots (231, Fig. 4C), which leave conductive material layer strips, elongated in a first direction and spaced apart in a second direction, the first and second directions being orthogonal to each other;

thereafter depositing field dielectric layer over and extending into the plurality of slots between the conductive material layer strips [col. 3, lines 55-col. 4, lines 43].

Chen discloses all the features of the claimed invention as discussed above, but does not disclose the step of separating the first conductive material layer strips into individual floating gates, thereby forming an array of rows and columns of the floating gates that are individually separated from the substrate surface by the grown layer of dielectric sandwiched thereby.

Harari et al., however, disclose the step of separating the first conductive material layer strips into individual floating gates, thereby forming an array of rows and columns of the floating gates that are individually separated from the substrate surface by the grown layer of dielectric sandwiched thereby [col. 5, lines 37-59].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply the teaching of Harari et al. to Chen discussed above such that the step of separating the first conductive material layer strips into individual floating gates for a purpose of improving the non-volatile memory integrated circuit.

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Allowable Subject Matter

9. Claims 7-22 would be allowed.

The following is a statement of reason for the indication of allowable subject matter:

Claims 7-22 are considered allowable since the prior art of record does not teach the claimed invention having a step of removing a top portion of the field dielectric to form a uniform surface across the first polysilicon layer strip, thereby leaving field dielectric between the first polysilicon layer strips in the second direction.

Conclusion

10. Examiner suggests that Applicant should cancel the non-elected claims 23-31 in response to the next Office Action if the application is considered to be allowable.

Applicants have the right to file a divisional application covering the subject matter of the non-elected claims.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuc T. Dang whose telephone number is 703-305-1080. The examiner can normally be reached on 8:00 am-5:00 pm.

12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on 703-308-4910. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-5841 for After Final communications.

13. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

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Phuc T. Dang PD

A handwritten signature in black ink, appearing to read 'Dang Phuc', written in a cursive style.

Examiner

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April 17, 2003